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Proceedings of the workshop to select Ecologically and Biologically Significant Areas (EBSA) in northern Foxe Basin, Nunavut

29 June 2009 in Winnipeg, MB
10 September 2009 in Igloolik, NU
19 November 2009 in Hall Beach, NU

Meeting Co-Chairs:
D. Cobb and J. Paulic (Winnipeg)
S. Newton and L. Hartwig (Igloolik)
S. Newton (Hall Beach)

Compte rendu de l'atelier sur le choix des zones d'importance écologique et biologique (ZIEB) dans le nord du bassin Foxe, au Nunavut

Le 29 juin 2009 à Winnipeg, Man.
Le 10 septembre 2009 à Igloolik, NU
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Co-présidents de la réunion
Cobb et J. Paulic (Winnipeg)
S. Newton et L. Hartwig (Igloolik)
S. Newton (Hall Beach)

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September 2010 | **Septembre 2010**

Canada

Foreword

The purpose of these Proceedings is to document the activities and key discussions of the meeting. The Proceedings include research recommendations, uncertainties, and the rationale for decisions made by the meeting. Proceedings also document when data, analyses or interpretations were reviewed and rejected on scientific grounds, including the reason(s) for rejection. As such, interpretations and opinions presented in this report individually may be factually incorrect or misleading, but are included to record as faithfully as possible what was considered at the meeting. No statements are to be taken as reflecting the conclusions of the meeting unless they are clearly identified as such. Moreover, further review may result in a change of conclusions where additional information was identified as relevant to the topics being considered, but not available in the timeframe of the meeting. In the rare case when there are formal dissenting views, these are also archived as Annexes to the Proceedings.

Avant-propos

Le présent compte rendu a pour but de documenter les principales activités et discussions qui ont eu lieu au cours de la réunion. Il contient des recommandations sur les recherches à effectuer, traite des incertitudes et expose les motifs ayant mené à la prise de décisions pendant la réunion. En outre, il fait état de données, d'analyses ou d'interprétations passées en revue et rejetées pour des raisons scientifiques, en donnant la raison du rejet. Bien que les interprétations et les opinions contenues dans le présent rapport puissent être inexactes ou propres à induire en erreur, elles sont quand même reproduites aussi fidèlement que possible afin de refléter les échanges tenus au cours de la réunion. Ainsi, aucune partie de ce rapport ne doit être considérée en tant que reflet des conclusions de la réunion, à moins d'indication précise en ce sens. De plus, un examen ultérieur de la question pourrait entraîner des changements aux conclusions, notamment si l'information supplémentaire pertinente, non disponible au moment de la réunion, est fournie par la suite. Finalement, dans les rares cas où des opinions divergentes sont exprimées officiellement, celles-ci sont également consignées dans les annexes du compte rendu.

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SUMMARY

Regional science peer review meetings were held on 29 June 2009 in Winnipeg, MB and 10 September 2009 in Igloolik, NU with an additional meeting held in Hall Beach, NU on 19 November 2009 to provide science advice on the selection of Ecologically and Biologically Significant Areas in the Foxe Basin region of Nunavut. Meeting participants were to identify areas, and their main features, and then prioritize them in terms of their contribution to ecosystem structure and function. Canada's *Oceans Act* authorizes Fisheries and Oceans Canada (DFO) to lead and coordinate the development of marine protected areas to allow enhanced protection of areas of the oceans and coasts which are considered ecologically or biologically significant. The meetings follow the framework established by DFO Science in developing criteria and methodologies for areas of significant biological interest (DFO 2004). The advice from these meetings will be considered by DFO Oceans Programs Division as part of the selection process leading to the establishment of a Marine Protected Area in the eastern Arctic. Meeting participants included DFO Science sector, Fisheries and Aquaculture Management sector, Oceans Programs Division and specialists from the Government of Nunavut, Parks Canada Agency and Natural Resources Canada with additional input from Environment Canada and Igloolik and Hall Beach community members. This proceedings report summarizes the relevant discussions and presents the key conclusions reached at the meetings.

All reports resulting from the Advisory Meeting will be published on the DFO Canadian Science Advisory Secretariat Website at http://www.dfo-mpo.gc.ca/csas-sccs/index-eng.htm.

SOMMAIRE

Des réunions régionales d'examen scientifique par des pairs ont eu lieu le 29 juin 2009 à Winnipeg, au Manitoba et le 10 septembre 2009 à Igloolik, au Nunavut, et une réunion supplémentaire a eu lieu le 19 novembre 2009 à Hall Beach, au Nunavut. Le but de ces réunions était de formuler un avis scientifique sur le choix des zones d'importance écologique et biologique de la région du bassin Foxe, au Nunavut. Les participants ont relevé chacune des zones ainsi que leurs principales caractéristiques les priorités selon leur contribution à la structure et aux fonctions de l'écosystème. En vertu de la *Loi sur les océans* fédérale, Pêches et Océans Canada (MPO) est habilité à diriger et à coordonner la désignation des zones de protection marine pour améliorer la protection de zones océaniques ou côtières ayant une importance particulière sur les plans écologiques ou biologiques. Les réunions ont été menées en fonction du cadre établi par le secteur des Sciences du MPO en matière d'élaboration de critères et de méthodes pour la désignation des zones d'importance biologique (MPO, 2004). La Division des programmes sur les océans du MPO tiendra compte de l'avis découlant de ces réunions dans le cadre du processus menant à la désignation de zones de protection marine dans l'est de l'Arctique. Parmi les participants, mentionnons des représentants des secteurs des Sciences et de la Gestion des pêches et de l'aquaculture ainsi que de la Division des programmes sur les océans du MPO, des experts du gouvernement du Nunavut, de l'Agence Parcs Canada et de Ressources naturelles Canada de même que d'autres personnes provenant d'Environnement Canada et des communautés d'Igloolik et de Hall Beach. Le présent compte rendu résume les discussions tenues au cours de la réunion ainsi que les principales conclusions formulées.

Tous les rapports découlant de la réunion de consultation scientifique seront publiés sur le site Web du Secrétariat canadien de consultation scientifique du MPO à l'adresse : http://www.dfo-mpo.gc.ca/csas-sccs/index-fra.htm.

INTRODUCTION

Fisheries and Oceans Canada (DFO) is leading the development of a Marine Protected Area (MPA) in the eastern Canadian Arctic. In order to determine community and government interest, DFO's Oceans Programs Division began consultations with the Government of Nunavut (GN), Nunavut Tunngavik Incorporated (NTI), the Nunavut Wildlife Management Board (NWMB) and the three Regional Inuit Associations (RIAs) (Kivalliq Inuit Association, Kitikmeot Inuit Association, Qikiqtani Inuit Association). The Igloolik study area was selected by the RIAs as their preferred site for an MPA in the Eastern Arctic.

MPAs established by DFO under the *Oceans Act* are meant to protect and conserve important fish and marine mammal habitats, endangered marine species, unique features and areas of high biological productivity or biodiversity. DFO Science was asked to identify any Ecologically and Biologically Significant Areas (EBSAs) that occur within the Igloolik study area based on the guidelines established by DFO Science for EBSA identification (DFO 2004). Once EBSAs are identified, DFO will work with Nunavummiut to identify an Area of Interest (AOI) for protection within one of the EBSAs, as per the Oceans Act MPA policy and operational framework (DFO 2009), which will then be assessed as to its merit as an MPA.

The purpose of this process, as described in the Terms of Reference (Appendix 1) was to

1) identify all EBSAs within the Igloolik study area,
2) identify the main features of each EBSA,
3) prioritize the EBSAs identified,
4) finalize a map of the EBSAs for the Igloolik study area.

In order to consider all relevant information, two meetings were planned. The first was held in Winnipeg and included participants from DFO Science, Oceans Programs Division (OPD) and Fisheries and Aquaculture Management (FAM) from the Central and Arctic (C&A) Region and specialists from the GN, Parks Canada Agency (PCA) and Natural Resources Canada (NRCan) (Appendix 2). Specialists from the Canadian Wildlife Service (CWS) of Environment Canada also contributed information for consideration. A second meeting was held in the community of Igloolik to allow participants to review the information compiled. Participants included DFO OPD, the Igloolik Hunter and Trapper Association, and local elders and community members (Appendix 2). At the meeting in Igloolik, participants recommended that an additional meeting be held to gain input from Hall Beach community members who traditionally use the area under discussion. Agendas for the meetings are presented in Appendices 3 and 4.

This proceedings report summarizes the relevant discussions and presents the key conclusions reached during the meetings. A Science Advisory Report (SAR) will include the scientific and traditional knowledge collected at each of the meetings, the EBSA evaluation matrices and a synopsis of the advice provided by all participants.

29 JUNE 2009 - WINNIPEG

OVERVIEW OF THE EBSA PROCESS

The meeting commenced with a description of EBSAs, how they fit into the process of creating MPAs and an explanation of how this current process was initiated. The objectives of the meeting, as laid out in the Terms of Reference (Appendix 1), were reiterated and guidance was provided on the science advice that was expected to be produced from the meetings.

Most of the Arctic marine ecosystem is data poor. In the EBSA process, applying the Oceans Act framework requires that expert opinion be considered in the absence of data. Local and traditional knowledge provides critical supporting information that should be considered as part of the process to identify EBSAs. Integration of all relevant and available information (scientific, local and traditional knowledge) resulted in the final EBSA map. To facilitate the integration of all relevant material, a community-based meeting was held in Igloolik to review the material resulting from this first meeting, identify and fill in any gaps. A second community-based meeting was then held in Hall Beach at the recommendation of participants in Igloolik.

Not all EBSAs or areas within EBSAs will become MPAs, however, the ecological and biological criteria for the establishment of MPAs is similar to EBSA criteria and an MPA may be created within an identified EBSA. The EBSA process also provides useful information and advice pertaining to the area that is relevant for all DFO sectors, co-management partners, local communities and organizations.

This is the second EBSA process to be conducted in the C&A Region. The first was in the western Arctic for the Beaufort Sea Large Ocean Management Area (LOMA) (Cobb *et al.* 2008). During that process, participants found there were significant issues with

- an uneven knowledge base (spatially and temporally),
- data-poor areas,
- a community bias toward important areas based on their traditional use (areas of occupation) rather than ecological importance,
- scale – the LOMA is a very large area, there may be different results at finer scales and determining the scale at the beginning of the process was critical, and
- uniform buy-in within all government departments and different approaches used by other departments.

<u>The MPA Process</u>

The selection of an MPA is separate from the EBSA process and conducted through consultations led by the OPD. Once a decision was made that an MPA should be developed in the eastern Arctic, support for a potential MPA was sought and received from the GN, NWMB and NTI. Discussions were held with the three RIAs to determine where to focus development of an MPA. The RIAs supported the initiative; however, they were concerned that MPA designation might obstruct economic development. They provided the OPD with the following criteria for designation of an MPA:

1) not disrupt economic development,
2) not located offshore,
3) located near a community,
4) would assist the Nunavut Coastal Resource Inventory (NCRI),

5) located away from Lancaster Sound where PCA is undertaking a feasibility study for a marine park,
6) not involve the province of Quebec, and
7) selected on the basis of information collected from the Regional Land Use Plans.

Based on these criteria and ecological information from Mercier *et al.* (1995), the OPD chose three potential areas of interest for their MPA selection process: Jones Sound, Igloolik and Southampton Island (Figure 1). In May 2009, the RIAs selected the Igloolik area for OPD to pursue an MPA. This resulted in a request from the OCP to Science for an EBSA exercise to be initiated for the Igloolik area.

Figure 1. The three general areas of interest originally identified by the OPD as potential areas for development of MPAs in the eastern Arctic.

DETAILED DISCUSSIONS

Ideally, the EBSA exercise would be conducted within a defined LOMA, however, no LOMAs had been defined in Nunavut, so the scale was defined by the MPA criteria received from the RIAs. Participants described some of the concerns they had with the process to identify EBSAs in the Igloolik area:

- EBSAs defined in data-poor areas might differ if more data were available. Participants wondered whether the EBSAs would be reviewed as new knowledge and information becomes available. They were concerned that there would not be future opportunities to propose new EBSAs or modify old ones.
- Although an EBSA does not necessarily result in the creation of an MPA, it was expected that this process would lead to one based on OPD timelines for developing an eastern Arctic MPA (by 2012). Participants were concerned that there might be other areas that were not being considered which were more appropriate for protection as an MPA.
- Even though the OPD provided Science with some guidance on the area they were interested in for an MPA, participants thought that it may not have been an acceptable scale from a Science perspective based on the oceanography and ecology of the area.

It was agreed that the exercise to identify EBSAs should continue despite the concerns. Participants felt that the EBSA process should be continual, with updates considered as new information becomes available and biases are removed. Participants discussed whether it was appropriate to limit the discussion to the Igloolik area or whether it should be expanded to include more of Foxe Basin. It was noted that EBSAs are intended to increase expectations for prudent management if an activity is proposed or conducted in an area near an EBSA. There are tools other than an MPA that can be used for protection of a species or area (e.g., integrated fisheries management plans (IFMP), fishing closures, recovery strategies), therefore broadening the scope of the area might also provide useful information for other client sectors (e.g., DFO FAM input into integrated fisheries management planning for walrus (*Odobenus rosmarus rosmarus*)).

It was also agreed that since the identification of an EBSA does not need to follow the criteria developed by the RIAs for the designation of an MPA, an EBSA could be identified in an area of potential economic development. One development with the potential to impact northern Foxe Basin is the Mary River Project. The project involves the construction, operation, closure, and reclamation of a high-grade iron ore deposit. The proposed iron ore mine would be located, along with associated facilities, on North Baffin Island. Ore would be transported from the mine area to an all-season deep-water port and ship loading facility at Steensby Inlet where the ore would be loaded into ore carriers for overseas shipment through Foxe Basin. Shipping would involve a dedicated fleet of ten cape-sized ore carriers, capable of breaking ice and operating year round. The EBSA exercise is based on the biological properties of an area not the risks or threats associated with it (DFO 2004), so participants felt it was reasonable to expand the area being considered for EBSAs to include the proposed shipping routes associated with the Mary River Project (Figure 2). After a lengthy discussion of how the Igloolik study area was identified and what the original request for advice included, participants agreed it was important to broaden the area to include all of northern Foxe Basin south to 68˚N (Figure 3). It was also agreed that expanding it beyond northern Foxe Basin was not feasible given time constraints for both DFO Science and the OPD.

The group agreed that the scale needed to conduct the exercise was dependent on the species or species group being discussed. This led to further discussion about the size of EBSAs and the development of an MPA network in Canada. The size of the EBSA is based on the extent of the feature or species being protected and is dependent on the organism and its ecological needs. For example, the larger the organism, typically the more vagile it is, the larger the EBSA that would be needed. From an organism's perspective the ideal situation would be to have a series of EBSAs with pathways identified in between. This was thought to be a reasonable approach based on oceanography, marine mammal and hunter distributions. Participants decided to discuss the available information according to species and species groups.

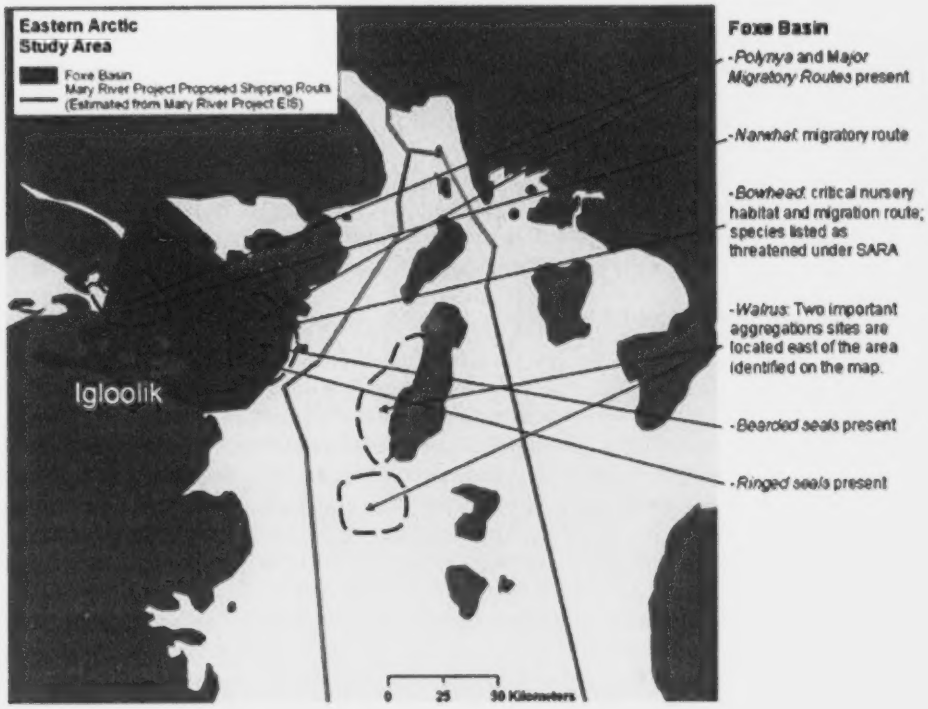
Eastern Arctic
Study Area
Foxe Basin
Mary River Project Proposed Shipping Route
(Estimated from Mary River Project EIS)
Igloolik
Foxe Basin
-Polynya and Major Migratory Routes present
-Narwhal migratory route
-Bowhead: critical nursery habitat and migration route; species listed as threatened under SARA
-Walrus: Two important aggregations sites are located east of the area identified on the map.
-Bearded seals present
-Ringed seals present
0
25
50 Kilometers

Figure 2. The Igloolik study area and adjacent northern Foxe Basin area with preliminary ecological information and the proposed Mary River Project transportation routes.

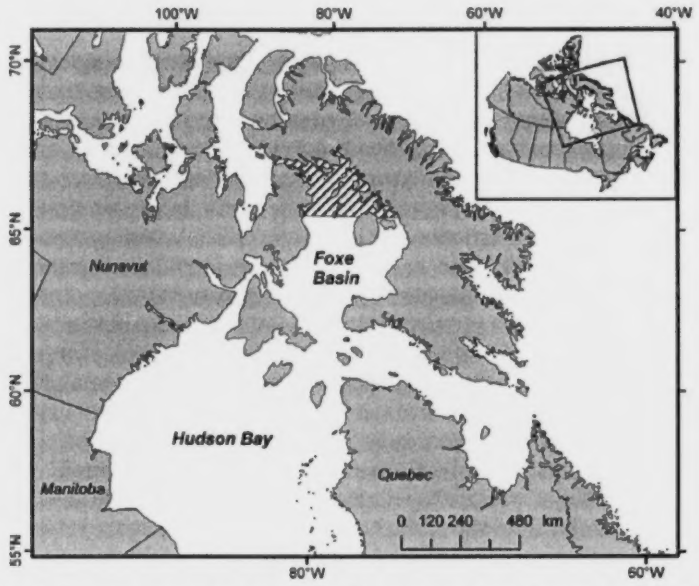

Figure 3. Northern Foxe Basin study area with southern boundary line set at 68˚N for the EBSA selection process.

INFORMATION AVAILABLE TO SUPPORT EBSAs

Geology

There is very little information pertaining to the geology of the area. In 2006, data were collected using a single multi-beam line through the Northern Foxe Basin study area by the CCGS *Amundsen*. There tends to be a lot of bedrock in Fury and Hecla Strait near Igloolik and south. There are also several gravel patches near Hall Beach.

Physical Oceanography

The importance of the area north of Igloolik was reiterated based on the oceanography of the region and the subsequent retention of organisms. There are likely two processes occurring there: 1) the transport of high volumes of water and nutrients to the area through Fury and Hecla Strait and 2) down- and up-welling events depending on the bottom topography and location of the ice front. These flows likely create a backwater draft along the west coast of Foxe Basin that pulls nutrient-rich waters westward along the coast driving coastal productivity.

Northern Foxe Basin is generally quite shallow. A participant pointed out that high lead concentrations in the annuli of walrus teeth are often associated with high storm years, also suggesting that there is a re-mixing of sediment.

Polynyas

Figure 4 illustrates polynyas in the region. It was suggested that the Fury and Hecla polynya (near the northwest corner of Foxe Basin) may be primarily driven by tides bringing up warm water which melts the ice while the two polynyas farther south typically form by wind as ice is exported.

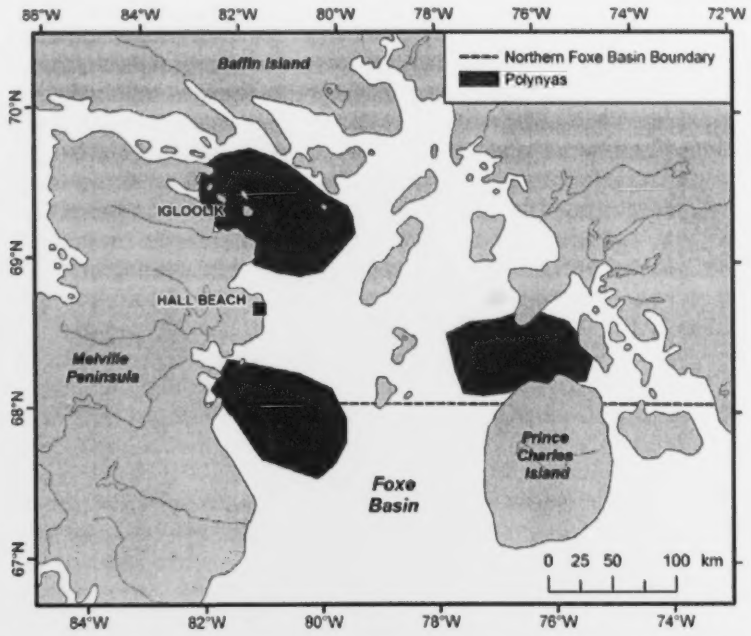

Figure 4. Distribution map of polynyas detected and identified in northern Foxe Basin (modified from Barber and Massom 2007).

Sea Ice

Sea ice was not in the EBSA matrix as a structural feature but should be added for evaluation. It was noted that a lot of the species and features for which there is information are associated with the west side of Foxe Basin. Participants discussed whether or not this was influenced by ice conditions. There is a fairly steady stream of multi-year ice that moves east through Fury and Hecla Strait into Foxe Basin. There is no production of multi-year ice in Foxe Basin, it is all imported from the archipelago and there could actually be more multi-year ice present here than in other regions. The general water circulation flows from Fury and Hecla Strait south along the west side of Foxe Basin into Foxe Channel early in the open-water season. Details of where the multi-year ice goes, its melting rate and the implications on primary production are unknown.

Phytoplankton and Primary Production

Limited data are available for primary production in northern Foxe Basin although there are data from August/September 1981. It appears that nutrients are limiting and concentrations are slightly lower than in Hudson Strait.

Zooplankton

There is very little information on zooplankton in the area. The area, however, is of importance for bowhead whale (*Balaena mysticetus*) feeding which usually coincides with retention zones for zooplankton and other food organisms. Based on the recent description of currents and the formation of polynyas, this would support the theory of a retention zone that has either down- or up-welling occurring in the region near the Fury and Hecla polynya.

Benthos

No specific benthic studies are available for this area. As it is an important feeding area for walrus and bearded seals which are benthic feeders, their presence is used as a proxy for benthic information.

Marine and Anadromous Fishes

In the area under consideration, there is very little information on marine fishes and currently no research being conducted. Based on a literature review, there are point distribution data (i.e., presence/absence information) but no biomass or abundance estimates, aggregation information, habitat use or distributions available. Marine fish regime shifts were discussed including speculation that Arctic Cod (*Arctogadus glacialis*) will be replaced by Capelin (*Mallotus villosus*) as the primary forage species in the Arctic.

Arctic Char (*Salvelinus alpinus*) information was available from FAM, the NCRI Igloolik Pilot Project (NCRI 2008) and local knowledge holders.

Seabirds

Coastal habitats in Foxe Basin and Hudson Bay support large populations of breeding and migrating waterfowl and shorebirds. There are no significant concentrations of bird species using the marine environment in the study area. However, polynyas are typically known to be important feeding habitat for sea birds.

Walrus

Walrus information came from DFO Science research and community knowledge collected during the IFMP process led by FAM. There are important feeding areas located all along the west coast of Foxe Basin and at the east entrance to Murray Maxwell Bay (Figure 5). There is also a large aggregation thought to be important for birthing and calving for walrus using the ice edge in winter and spring that extends from Hall Beach north. Another important calving area was identified at the mouth of Steensby Inlet. In September, all of the islands within northern Foxe Basin are used by walrus as haul-out sites and both Rowley and Manning Island have large aggregations. Another unique feature about this walrus population is that there is very little immigration/emigration with other populations and no annual migration. They are year-round residents of the area.

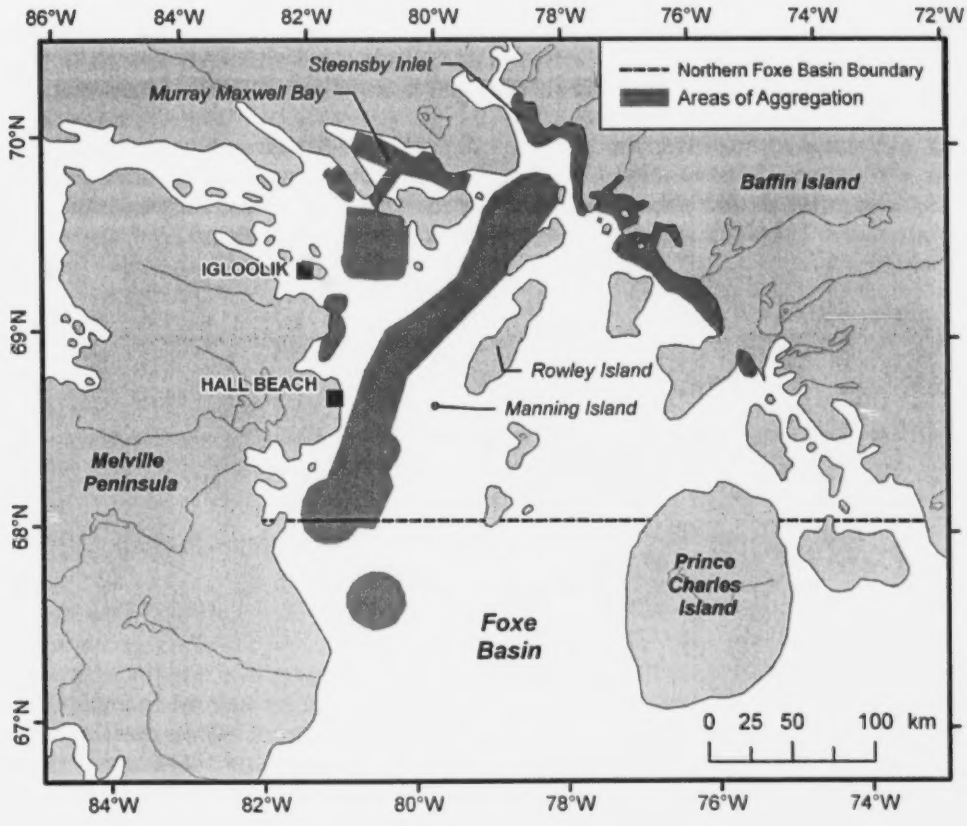

Figure 5. Areas identified as important walrus sites in northern Foxe Basin.

Bearded and Ringed seals

There is a relatively high density of bearded seals (*Erignathus barbatus*) in the area year-round which also feed on the benthic organisms, however, there is very little information available pertaining to their habitat use. Juveniles are probably utilizing the polynyas and open water. Pupping occurs on the pack-ice.

Ringed seals (*Phoca hispida*) are found at relatively lower density than in other areas of the Arctic. They typically prefer deeper water. Similar to bearded seals, the juveniles probably prefer the open water.

Bowhead Whales

DFO research in northern Foxe Basin, the Nunavut Bowhead Traditional Knowledge Report (NWMB 2000) and other published literature provided the information for bowhead whales in this area. There are a high proportion of juveniles and calves present at the eastern mouth of Fury and Hecla Strait, just north of Igloolik, suggesting that this is a nursery area. The migratory path used by bowheads is along the west side of Foxe Basin into Fury and Hecla Strait. Whales are also known to migrate through the strait into the Gulf of Boothia.

Beluga Whales

There are very few belugas (*Delphinapterus leucas*) in this region although hunters do take them occasionally in the fall. Foxe Basin is in between two identified areas of beluga aggregations. Those belugas that have been sampled in this area are genetically more like the belugas in Hudson Bay than those from the eastern High Arctic-Baffin Bay stock that summer in the Prince Regent Inlet area.

Narwhal

Narwhals (*Monodon monoceros*) also do not frequent this region. Those that are found in the area are reported to have come from the west, through Fury and Hecla Strait. This is consistent with the genetics data that indicates these whales are more like High Arctic narwhals than those from Northern Hudson Bay. Migration occurs in late summer corresponding to the typical hunting season. They are not typically found in Foxe Basin during winter.

Polar Bears

Polar bears (*Ursus maritimus*) have been assessed as Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The GN provided information about polar bear denning areas (Figure 6). There are several future studies planned for the Foxe Basin polar bear population.

Killer Whales

There has been an increase in the sightings of killer whales (*Orcinus orca*) in the area in recent years. The increase in killer whale sightings is correlated with the increase in the bowhead whale population. Participants indicated that killer whales likely follow bowhead distributions and they have been reported to kill 5-10 bowhead whales per year. They are thought to be coming from Hudson Strait and not the High Arctic although they have been observed moving through Fury and Hecla Strait in both directions suggesting that they follow bowhead whales through and then return. It was suggested that this may be the reason bowhead whales are moving into the Gulf of Boothia where there is typically more ice protection from killer whale predation.

IDENTIFYING CANDIDATE EBSAS

It was reiterated that EBSA boundaries are not absolute, particularly since many of the features that drive the Arctic ecosystem are temporally or spatially variable. Following discussion of the various species distributions and the characteristics of the area, participants agreed that three areas should be considered EBSAs in northern Foxe Basin (Figure 7).

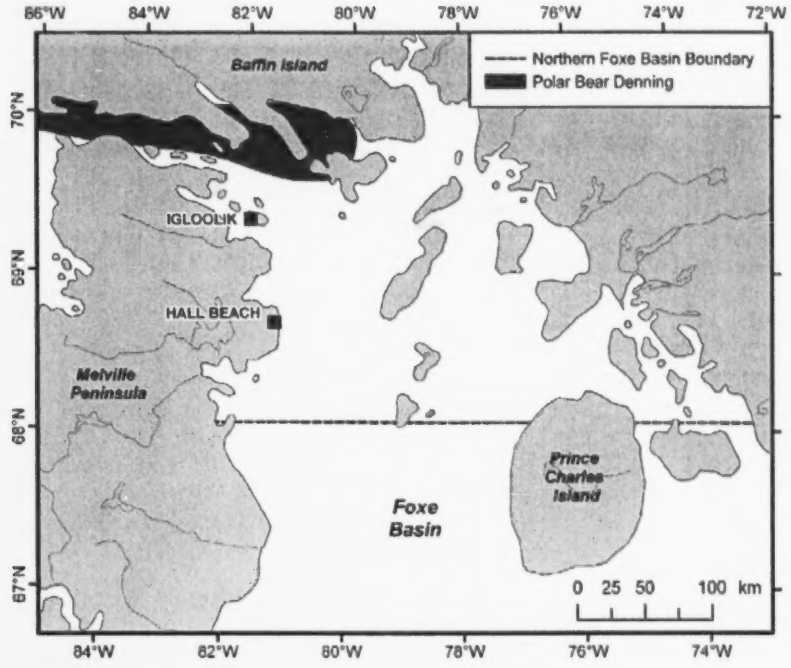

Figure 6. Polar bear denning sites in northern Foxe Basin (data provided by H. Robison, GN).

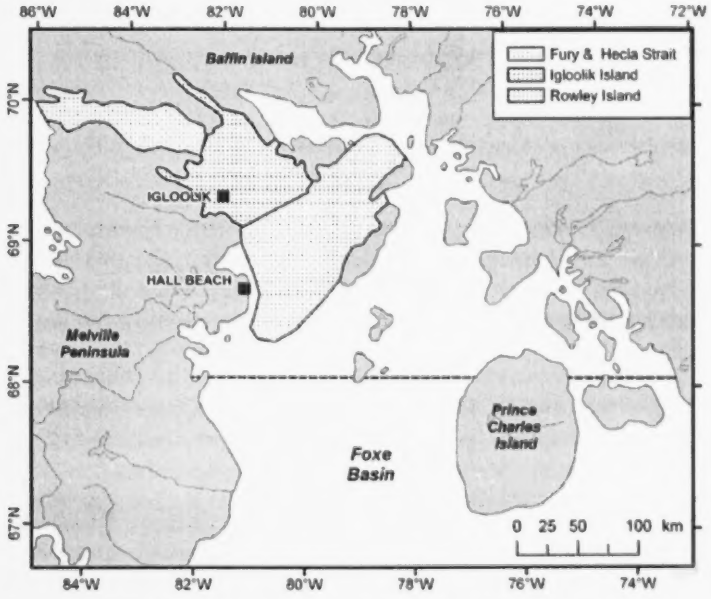

Figure 7. Northern Foxe Basin draft EBSA map from the Winnipeg meeting.

Participants felt that defining the boundaries of the EBSAs would have been easier if there were bathymetry data to work with. Without bathymetry, participants drew outlines on the map to define the three areas. There was a lengthy discussion about the appropriate size of the EBSAs. However with the current state of knowledge, participants concluded that the areas as illustrated in Figure 7 were based on a precautionary approach. As new information and data are collected for this area the boundaries may be modified or refined in the future.

EBSA FEATURES

The main features of the Igloolik Island EBSA are

1) a polynya,
2) increased nutrients/productivity,
3) mixing and retention zones,
4) use of the area by belugas and narwhals,
5) nursery area for bowheads,
6) walrus feeding,
7) migratory path for bowheads, narwhals, belugas and killer whales,
8) polar bear denning area,
9) Arctic Char,
10) marine fish use, and
11) killer whale feeding.

The main features of the Rowley Island EBSA are

1) a sea ice edge,
2) walrus aggregation, and
3) migratory path for bowhead whales, narwhals, belugas and killer whales.

The main features of the Fury and Hecla Strait EBSA are

1) a source of currents driving the Igloolik Island EBSA,
2) migratory corridor for bowhead whales, narwhals, belugas and killer whales, and
3) polar bear denning.

One of the concerns raised during this discussion was how to rank or prioritize the EBSAs relative to their Biological and Ecological Significance since each species holds a different level of importance (e.g., marine fish species vs bowhead whale). The decision was made to go through the matrix and evaluate each EBSA to see whether there was sufficient information to provide a ranking.

It was suggested that maps for each of the features in each EBSAs be created were possible. This would provide information for the OPD to use when determining the location and boundaries for the MPA.

APPLYING THE CRITERIA

Participants agreed to continue by completing the evaluation matrix using the guidance report (DFO 2004) based on the current knowledge for northern Foxe Basin. The EBSA matrix by species or species group identified low, medium and high 'values' for each of the criteria: uniqueness, aggregation, fitness consequences, resilience and naturalness. This part of the

process was completed following the initial meeting. Participants added a level of certainty to their ranking to help identify where knowledge was lacking and expert opinion was used rather than being based on data. There were several features and species groups where very little or no information was available so they could not be evaluated.

In order to address concerns and difficulties with the EBSA matrix, modifications were made to the process. In circumstances were no data existed, a feature could be described in a short report format until new information could be added. In addition, it was suggested that the matrix be completed by writing a short rationale without necessarily deciding the absolute ranking. This also allowed a description of the level of confidence and identified the scale at which the feature was evaluated. Participants agreed to complete the matrix for particular species groups.

NEXT STEPS

Following the Winnipeg meeting, a meeting was planned for Igloolik. Once completed, the OPD would develop a Memorandum of Understanding with the Government of Nunavut related to the establishment of an MPA. A Steering Committee would be established and would consider the information from the EBSA process. Social, cultural, economic and ecological assessments would be developed for the area being considered as an MPA.

Participants were thanked for their time and effort and the meeting was adjourned.

10 SEPTEMBER 2009 - IGLOOLIK

On 10 September 2009, DFO staff from the C&A Region OPD met with the Hunters and Trappers Organization (HTO) and the community of Igloolik to discuss and confirm the EBSAs identified in the Foxe Basin marine area during the meeting in Winnipeg. Participants included the HTO members and Igloolik community members. The meetings began with a PowerPoint presentation, introducing the concept of an MPA and the role of EBSAs. Then the unique features of each EBSA, identified during the Winnipeg meeting, and the rationale behind their selection was explained. HTO and community members provided input throughout the meetings by marking their comments and observations on maps displayed around the room.

The HTO members and community of Igloolik expressed interest in moving forward with the establishment of an *Oceans Act* MPA in Foxe Basin. They agreed that the areas identified through the EBSA workshop are ecologically and biologically significant. However, suggestions were made to extend the Rowley Island EBSA. The HTO members identified walrus as one of the most desirable species to protect in the Ammittuq Region (Foxe Basin) because they are an important food source for the community. The Rowley Island EBSA was identified as particularly important for hunting walrus in the summer. In addition, the floe edge was identified as significant to the community for hunting walrus and seals in the winter, and because it is easily accessible.

EXTENDING THE NORTHERN BOUNDARY OF THE ROWLEY ISLAND EBSA

The HTO members expressed concern about the Mary River Project shipping routes that are proposed to go through Foxe Basin and through the Rowley Island EBSA. Their concerns focused on the effects of year-round shipping on marine mammal habitat and migration routes. They believe that vibrations, noise and ice breakup, as a result of shipping, will be detrimental to the ecology and biology of the area. Steensby Inlet, the proposed port location for the Mary

River Project, was repeatedly described as an area of importance for walrus. The area was identified as important for a different type of walrus than is harvested in Foxe Basin proper. Thus the boundaries of the Rowley Island EBSA were extended north to include Steensby Inlet, about 40 km northwest of Rowley River (Figure 8).

EXTENDING THE SOUTHERN BOUNDARY OF THE ROWLEY ISLAND EBSA

Roche Bay and South Ooglit Island were identified by the HTO members as important areas for marine mammals. Members of the Igloolik and Hall Beach communities depend on this area for subsistence harvesting of walrus. It was suggested that the Rowley Island EBSA be extended south to the tip of the Amitioke Peninsula (Figure 8).

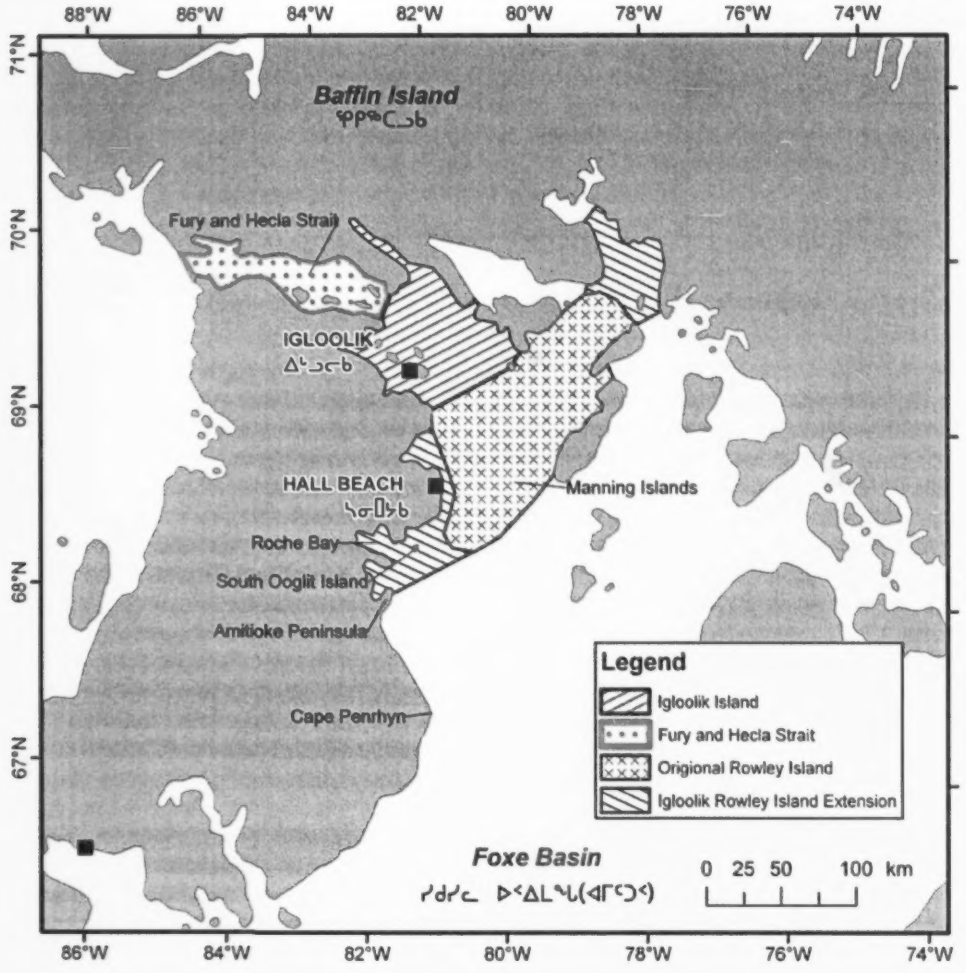

Figure 8. Northern Foxe Basin EBSA map developed from the Winnipeg meeting with recommendations from the Igloolik community meeting.

Modifications to the Rowley Island EBSA (Figure 8) were discussed with community members and agreed upon. The HTO and community members were satisfied that the important ecologically and biologically significant areas for the Foxe Basin marine area (as defined in the EBSA workshop) are included in the Fury and Hecla Strait, Igloolik and modified Rowley Island EBSAs. Participants also recommended that the community of Hall Beach be consulted on this work.

19 NOVEMBER 2009 - HALL BEACH

On 19 November 2009, DFO staff from the C&A Region OPD met with the HTO and community members of Hall Beach. The purpose of the meeting was to discuss and confirm the EBSAs identified in the Foxe Basin marine area through the Winnipeg meeting with the modifications from the Igloolik discussions. The meeting structure was the same as in Igloolik, including presentations followed by an opportunity for feedback and input. Comments and observations were recorded throughout the meeting.

The results of the discussions from the HTO meeting confirmed that an MPA in Foxe Basin would be beneficial to the community. The Rowley Island EBSA is particularly important for the hunters in Hall Beach and it was thought the Rowley Island EBSA should be extended to include Roche Bay and south to Cape Penrhyn (Figure 9).

EXTENDING THE SOUTHERN BOUNDARY OF THE ROWLEY ISLAND EBSA

The HTO members identified Roche Bay, South Ooglit Island and the Manning Islands as being of particular ecological and biological importance. The significance of these areas was the basis for the recommendation to extend the Rowley Island EBSA (Figure 9). Specifically these areas were indicated for their importance to marine birds and walrus. In addition, the three rivers that feed into Roche Bay were highlighted as important areas for Arctic Char.

The HTO recommendation to extend the Rowley Island EBSA was supported by the community of Hall Beach.

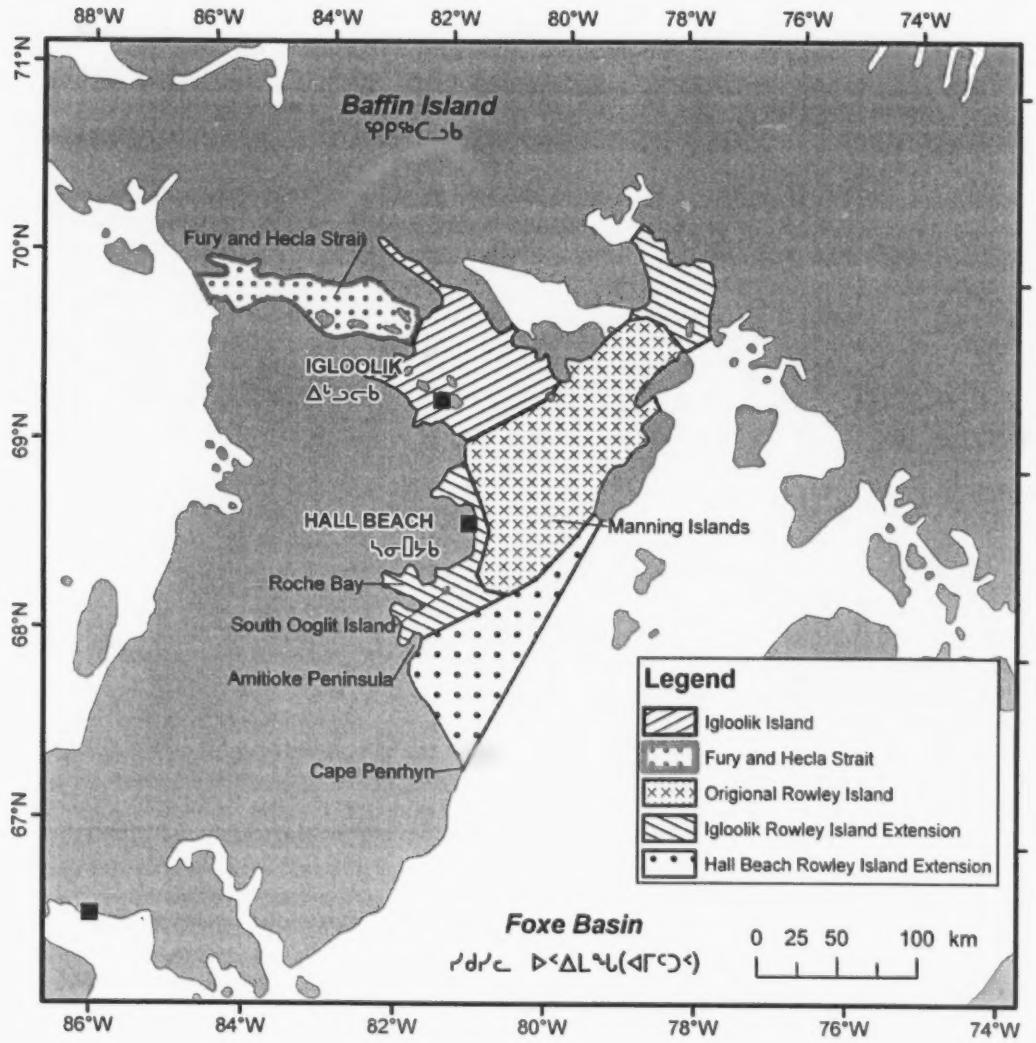

Figure 9. Northern Foxe Basin draft EBSA map from the Winnipeg and, Igloolik meetings with the recommendations from Hall Beach.

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ACKNOWLEDGEMENTS

We would like to thank Leah Hartwig of Oceans Programs Division who put in a great deal of time and effort creating most of the maps for the meetings. Leah also produced maps for this report and those included in the Science Advisory Report resulting from the meeting.

APPENDIX 1. Terms of Reference

ECOLOGICALLY AND BIOLOGICALLY SIGNIFICANT AREAS SELECTION PROCESS FOR THE IGLOOLIK STUDY AREA

SCIENCE WORKSHOP

June 29, 2009
Freshwater Institute, Winnipeg, MB

Co-chairs: Don Cobb and Joclyn Paulic

IGLOOLIK COMMUNITY WORKSHOP
September 10, 2009
Igloolik, NU

Co-chairs: Steve Newton and Leah Hartwig

HALL BEACH COMMUNITY WORKSHOP
November 19, 2009
Hall Beach, NU

Chair: Steve Newton

Background

Canada's *Oceans Act* (1997) authorizes Fisheries and Oceans Canada (DFO) to provide enhanced management to areas of the oceans and coasts which are ecologically or biologically significant (DFO 2004). The identification of an Ecologically and Biologically Significant Area (EBSA) is considered to be a useful tool to call attention to areas that have particular ecological or biological significance to facilitate a greater-than-usual degree of risk aversion in the management of activities (DFO 2004). The identification of EBSAs requires an inclusive and transparent process that gathers both scientific and traditional knowledge and integrates the results to achieve a final EBSA map.

In fall 2008/winter 2009, DFO Oceans conducted meetings in Nunavut with the Regional Inuit Associations (RIAs), Nunavut Tunngavik Inc. (NTI), Nunavut Wildlife Management Board (NWMB) and Government of Nunavut (GN) to consider areas in Nunavut that might contain EBSAs. The Igloolik study area was selected as one possible area. Two science advisory workshops will be held to assess the available knowledge for the Igloolik study area to determine whether one or more locations/areas within it would qualify as an EBSA. Following the workshops a teleconference call will be held to integrate the science and traditional knowledge in order to finalize an EBSA map.

Workshop Objectives

The intent of the workshops is to complete the following objectives, according to guidance provided nationally in an Ecosystem Status Report (CSAS 2004/006):

1) identify all EBSAs in the Igloolik study area;
2) identify the "main feature" of each EBSA;
3) prioritize the EBSAs identified; and
4) finalize a map of EBSAs for the Igloolik study area

Workshop Outputs

These workshops will generate a Canadian Science Advisory Secretariat (CSAS) Proceedings Report(s), which will summarize the discussion at both workshops and a Science Advisory Report (SAR), which will summarize the advice resulting from the workshops. The SAR will describe the process used for EBSA identification, the information gathered, the evaluation matrices, the resulting EBSA maps and rankings of the identified EBSAs based on current scientific knowledge of the area.

Participation

Experts from a variety of organizations and the community of Igloolik will participate in the workshops including DFO, Environment Canada, Parks Canada Agency, Natural Resources Canada Indian and Northern Affairs Canada, the Government of Nunavut, Hunters and Trappers Associations, community members, elders and others.

APPENDIX 2. Meeting Participants

Winnipeg – 29 June 2009			
Name	**Affiliation**	**Area of Expertise**	**E-mail Address**
D. Cobb (co-chair)	DFO-Science	Marine environmental quality	Don.Cobb@dfo-mpo.gc.ca
J. Paulic (co-chair)	DFO-Science	Marine environmental quality	Joclyn.Paulic@dfo-mpo.gc.ca
Robbie Bennett[1]	NRCan	Geology and seabed mapping	Robbie.Bennett@nrcan-rncan.gc.ca
Steve Ferguson	DFO-Science	Marine mammal ecology (seals and whales)	Steve.Ferguson@dfo-mpo.gc.ca
Charles Hannah[1]	DFO-Science	Physical oceanography	Charles.Hannah@dfo-mpo.gc.ca
Leah Hartwig	DFO-OPD	Oceans integrated management planning	Leah.Hartwig@dfo-mpo.gc.ca
Beth Hiltz	DFO-FAM	Commercial fisheries management	Beth.Hiltz@dfo-mpo.gc.ca
Mark Mallory[2]	EC	Sea birds ecology	Mark.Mallory@ec.gc.ca
Kathleen Martin	DFO-Science	Science advice	Kathleen.Martin@dfo-mpo.gc.ca
Allison McPhee	DFO-FAM	Marine mammal management	Allison.McPhee@dfo-mpo.gc.ca
Francine Mercier[1]	PCA	Parks establishment	Francine.Mercier@pc.gc.ca
Christine Michel	DFO-Science	Marine productivity	Christine.Michel@dfo-mpo.gc.ca
Steve Newton	DFO-Oceans	MPA planning	Steve.Newton@dfo-mpo.gc.ca
Lianne Postma	DFO-Science	Marine mammal molecular genetics	Lianne.Postma@dfo-mpo.gc.ca
Jim Reist	DFO-Science	Marine and anadromous fishes	Jim.Reist@dfo-mpo.gc.ca
Pierre Richard	DFO-Science	Marine mammal ecology (whales)	Pierre.Richard@dfo-mpo.gc.ca
John Ritchie[1]	DFO-OPD	MPA Coordinator	John.Ritchie@dfo-mpo.gc.ca
Hillary Robison	Government of Nunavut	Polar Bears	hrobison@gov.nu.ca
Chantelle Sawatzky	DFO-Science	Marine and anadromous fishes	Chantelle.Sawatzky@dfo-mpo.gc.ca
Sam Stephenson	DFO-OPD	Marine environmental quality	Sam.Stephenson@dfo-mpo.gc.ca
Rob Stewart	DFO-Science	Marine mammal ecology (walrus, seals)	Rob.Stewart@dfo-mpo.gc.ca
Cal Wenghofer[1]	DFO-OPD	Oceans integrated management planning	Cal.Wenghofer@dfo-mpo.gc.ca
Robert Young	DFO-Science	Arctic Aquatic Research manager	Robert.Young@dfo-mpo.gc.ca

[1] participated via teleconference call
[2] provided input prior to the meeting for inclusion in the discussions

Igloolik – 10 September 2009	
Name	**Affiliation**
Steve Newton	DFO-OPD
Leah Hartwig	DFO-OPD
David Ingaut	Igloolik HTO
Michilline Ammaq	Igloolik HTO
Peter Awa	Igloolik HTO
David Angutirjuaq	Igloolik HTO
Micha Arreak	Interpreter
Rebecca Miki	Igloolik HTO
Solomon Mikki	Igloolik HTO
Gideon Taqaogaq	Igloolik HTO
Simonie Issiquitok	Igloolik HTO
Jacobie Maliki	Igloolik HTO

Hall Beach – 19 November 2009	
Name	**Affiliation**
Steve Newton	DFO-OPD
Thomas Suluk	DFO-Eastern Arctic Area Office
David Irqittuq	Hall Beach HTO
Simeonie Kaernerk	Hall Beach HTO
Levi Kaunak	Hall Beach HTO
Timothy Kuppaq	Hall Beach HTO
Jason Mikki	Qiqiktaaluk Wildlife Board
Manasie Naullaq	Hall Beach HTO
Luba Nangmalik	Hall Beach HTO
Percy Pikuyak	Hall Beach HTO
Abe Qammaniq	Hall Beach HTO
Peter Siakuluk	Hall Beach HTO

APPENDIX 3. Winnipeg Meeting Agenda

EBSA Selection for Igloolik Study Area

June 29, 2009
9:00 AM – 4:00 PM
Winnipeg, MB
Agenda

Morning 9:00AM

1. **Welcome and Introductions – Rob Young**

2. **Overview of the EBSA Process – Don Cobb**
   - Workshop Objectives
   - Lessons Learned from the Western Arctic
   - Igloolik study area

3. **Summary of Expert Knowledge Collected – Joclyn Paulic**
   - Review of Current Information Collected

Break 10:00AM-10:30AM

4. **Review of Candidate EBSAs – Joclyn Paulic**
   - Review Current EBSA Map
   - Discussion – Modify as Needed

5. **EBSA Matrix: National Guidelines and Criteria – Don Cobb**
   - Review Guidelines and Criteria for Evaluation
   - Discuss Potential Scoring System

Lunch 12:00PM

6. **Applying the Criteria – All**
   - Complete EBSA Matrix for Candidate EBSAs

Break 3:00PM-3:30PM

7. **Gaps – All**
   - Create a list of Scientific Gaps for each EBSA

8. **Next Steps – Steve Newton**
   - Community EBSA meeting – July 2009
   - Area of Interest Selection Process

APPENDIX 4. Igloolik and Hall Beach Meetings Agenda

EBSA Selection for Igloolik Study Area

10 September 2009
Igloolik, Nunavut

19 November 2009
Hall Beach, Nunavut

Agenda

Meeting starts at 9:30am

1. **Opening Prayer**

2. **Welcome and Introductions**

3. **Agenda – Review and Approve**

4. **Marine Protected Area Presentation**

Lunch at 12:00 (provided)

5. **Important Areas in the Igloolik/Foxe Basin Marine Area**
   - Look at Maps
   - Review Nunavut Coastal Resource Inventory information
   - Review Science information
   - Confirm the 3 Important Areas

6. **Area of Interest for a Marine Protected Area**
   - Pick/confirm an Area of Interest for a Marine Protected Area

7. **Next Steps**

8. **Close Meeting**

Meeting ends at 4:00pm